

## CLAIMS:

We claim:

1. A method of forming metal oxide powders, comprising the steps of:  
solid state mixing of at least one metal nitrate salt and at least one reducing organic acid, and  
heating said metal nitrate salt and said reducing organic acid, wherein a metal oxide powder is formed.
2. The method of claim 1, wherein said heating comprises a first heating step which forms a metal oxide precursor complex from said metal nitrate salt and said reducing organic acid, and a second heating step which converts said precursor complex into said metal oxide powder.
3. The method of claim 1, wherein at least a portion of said heating is performed in an oxygen containing atmosphere.
4. The method of claim 1, wherein said organic acid is a hydroxy acid.
5. The method of claim 4, wherein said hydroxy acid comprises tartaric acid or citric acid.

6. The method of claim 1, wherein an average particle size of said metal oxide powder is from 10 to 100 nm.

7. The method of claim 1, wherein said at least one metal nitrate salt comprises at least two different metal nitrate salts.

8. The method of claim 2, wherein said first heating step is performed at a temperature from 200 to 400 °C.

9. The method of claim 2, wherein said second heating step is performed at a temperature from 200 to 1600 °C.

10. The method of claim 2, further comprising the step of grinding said precursor before said second heating step.

11. The method of claim 1, wherein said metal oxide includes at least one phosphor.

12. The method of claim 1, wherein said metal oxide includes at least one ion conducting metal oxide.